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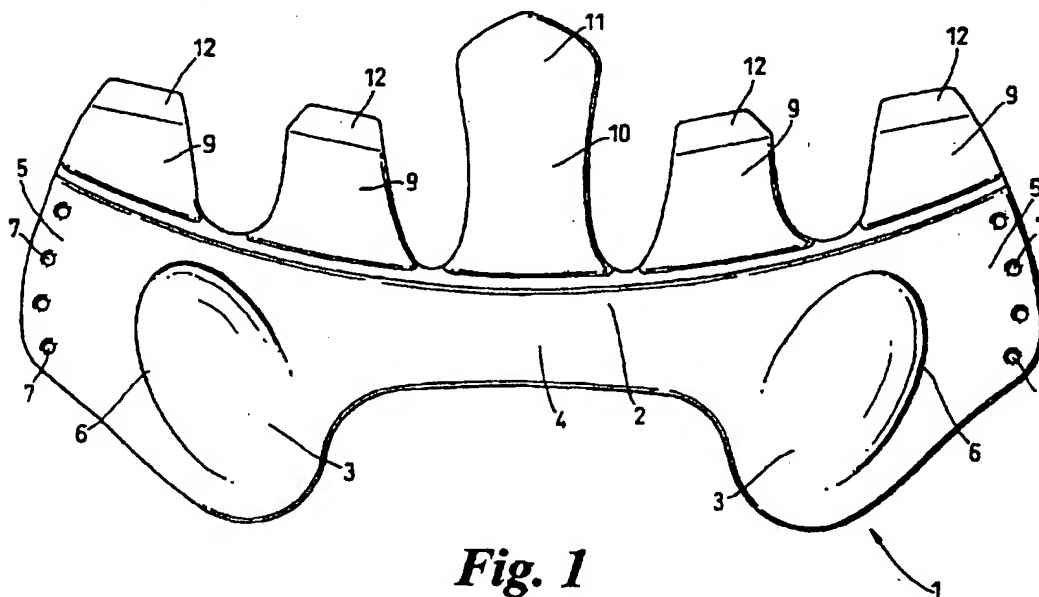
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(56) Documents Cited  
US 4706305 A US 4279038 A

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UK CL (Edition Q) A3V  
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(54) Abstract Title  
One piece head guard

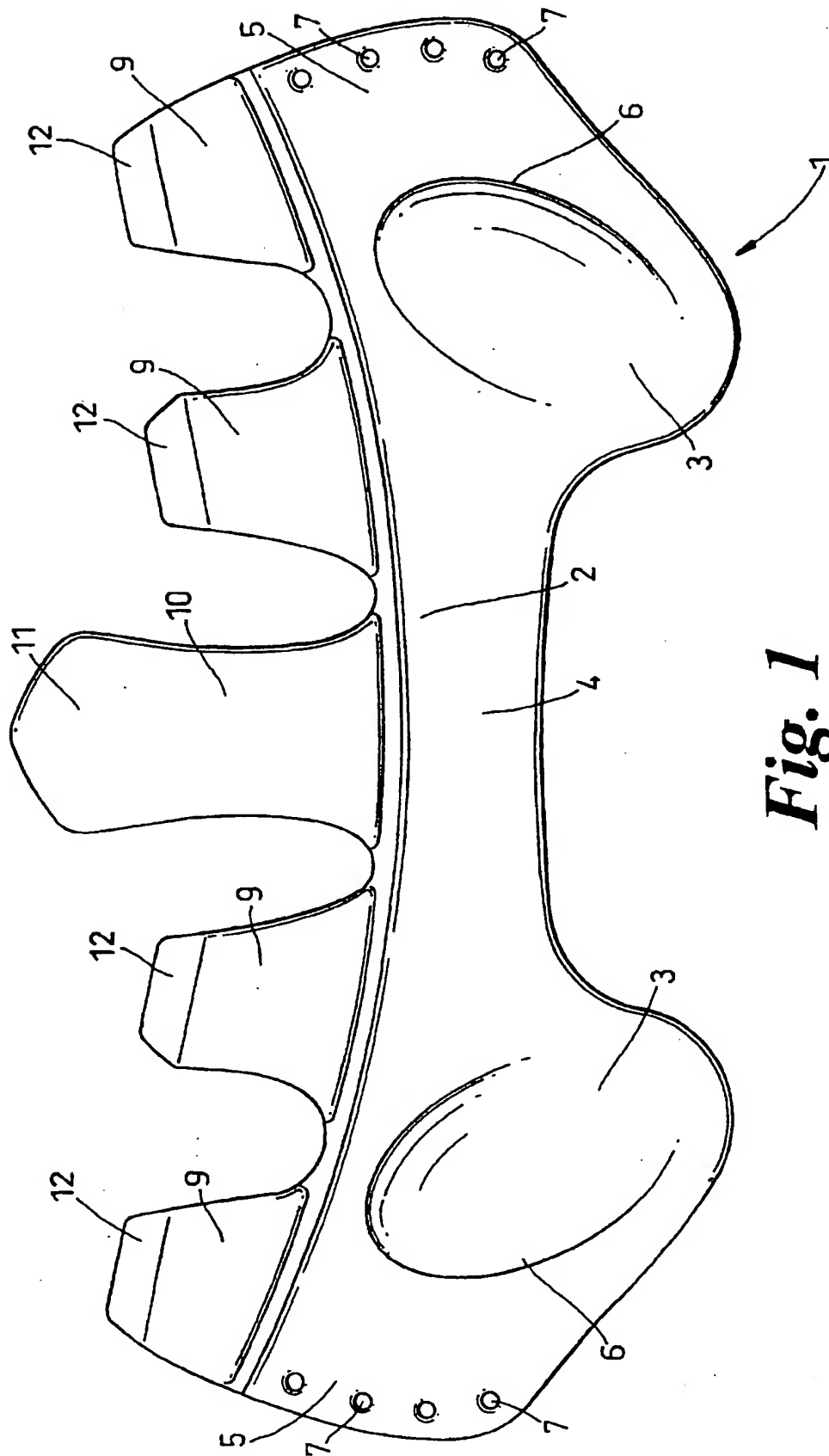
(57) A head-guard is provided for use in sporting activities comprising, a blank 1 made from a plastics foam and fashioned to form a helmet. The blank is a one-piece moulded blank, of which portions 9 and 10 are folded and secured together to form the helmet. Preferably, the blank comprises a closed-cell foam over which a fabric has been laminated, and features a shaped band 2, for fitment around the head, ear flaps 3, forehead cover 4 and cover for the rear of the head 5. Protection for the top of the head is provided by the secured portions 9 and 10, as in figure 2.



**Fig. 1**

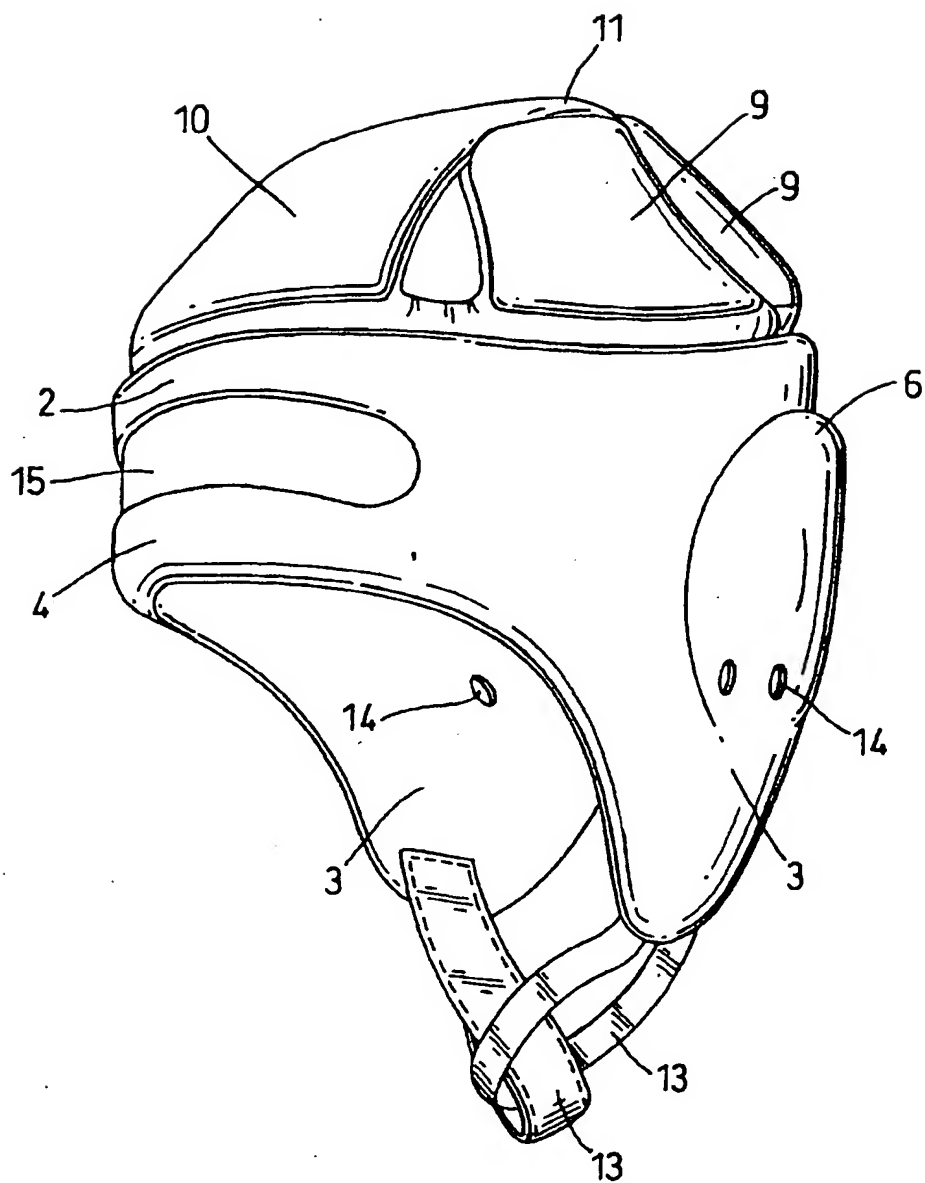
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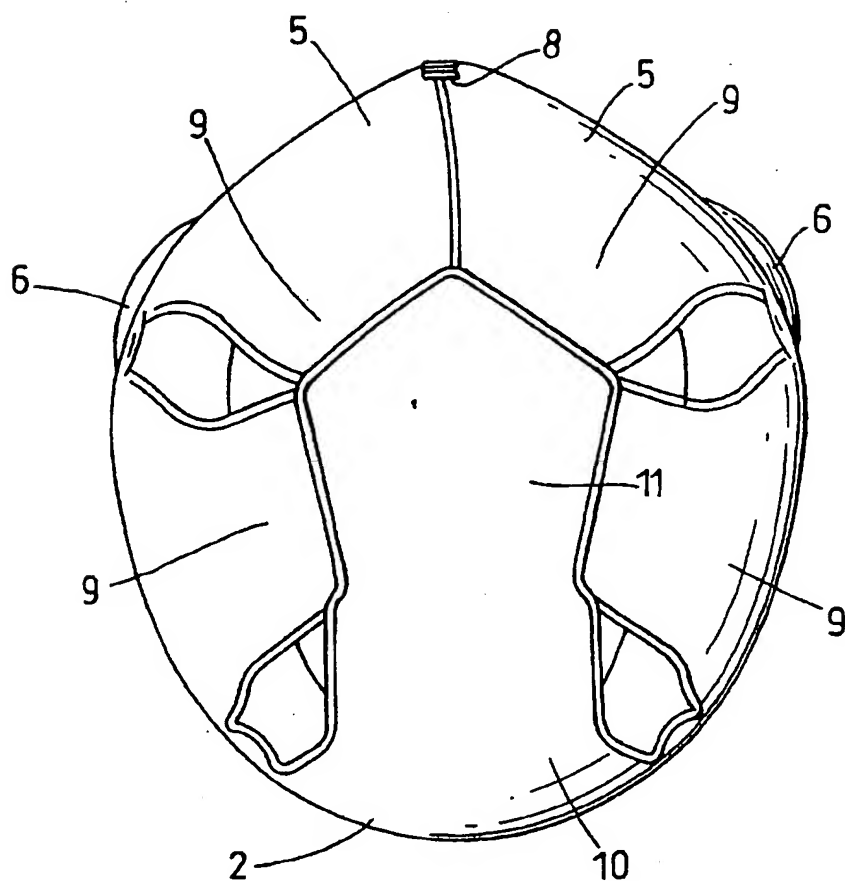


**Fig. 1**

2/3



**Fig. 2**



***Fig. 3***

### A HEAD-GUARD

The present invention relates to a head-guard and in particular to a head-guard for use in sporting activities such as playing rugby football.

Traditional head-guards used in sporting activities such as playing rugby football comprise leather helmets which are stitched together from various padded sections. Such guards are intended to cover and therefore protect the ears, crown of the head and forehead and are usually fastened under the chin by means of a strap.

It will be appreciated that the construction of these traditional head-guards is both fiddly and labour intensive as each of the sections making up the guard must be constructed before being finally sewn together to make the finished article.

Recently, head-guards have been made from separate pieces of fabric-covered plastics foams which are manufactured into appropriately shaped sections, in particular a piece intended to cover the crown of the head and one or more pieces which fit around the back and sides of the head. However, again the finished article is manufactured by sewing the various separate pieces together. This is again a labour intensive task.

The object of the present invention is to provide a head-guard of a construction which substantially reduces the finishing work necessary for its manufacture.

According to a first aspect of the present invention there is provided a head-guard for use in sporting activities comprising a blank which is made from a plastics foam and which has been fashioned to form a

helmet and characterised in that the blank comprises a one-piece moulded blank, portions of which are folded and secured together to fashion the helmet.

Preferably, the blank comprises a fabric-covered, closed-cell foam. Advantageously, the fabric has been laminated to the foam.

Preferably also, some of the portions of the blank which are secured together are secured by stitching.

Preferably also, a chin strap is attached to the helmet for holding the head-guard in place during use.

Preferably also, the blank comprises a shaped band for fitment around the head, which band comprises ear-flaps, a forehead cover, and two portions for covering the rear of the head, and a plurality of projecting sections extending from the band which sections are intended to cover the crown of the head and which are the portions of the blank that are folded and secured together to fashion the helmet.

Preferably also, the two portions for covering the rear of the head are adapted to be releasably secured together, for example by means of a lace.

Preferably also, one of the plurality of projecting sections extending from the band has a greater length than the others and an enlarged end to which edges of the other sections are secured. Advantageously, the enlarged end defines a substantially polygonal shape to each free side of which one of said edges is secured.

According to a second aspect of the present invention there is provided a moulded plastics foam blank for use in the manufacture of a head-guard according to the first aspect of the invention.

An example of the present invention will now be described by reference to the accompanying drawings, in which:-

Fig. 1 is a view of a blank according to the second aspect of the invention and for use in the manufacture of a head-guard according to the first aspect.

Fig. 2 is a perspective side view of the head-guard; and

Fig. 3 is a plan view of the head-guard.

As shown in Fig. 1 a blank 1 for use in the manufacture of the head-guard comprises a moulded plastics foam which is appropriately shaped, as will be described. Advantageously, the blank 1 is moulded from a conventional closed-cell foam which has a fabric exterior that has been laminated to the foam, for example using a hot-melt adhesive.

The blank is shaped so that it can be folded and secured to form a close-fitting helmet. To this end, the blank 1 comprises a shaped band 2 for fitment around the head, which band 2 defines ear-flaps 3, a forehead cover 4, and two portions 5 for covering the rear of the head. The ear-flaps 3 may be moulded to define hollows 6 in order to accommodate the ears comfortably. In addition, the two portions 5 for covering the rear of the head are adapted to be releasably secured together in order to permit the head-guard to be securely fastened to the head.

In this example the portions 5 are each provided with a series of moulded indentations 7 which can be thereafter easily pierced and through which a lace 8 (see Fig. 3) can be threaded and tied in order to secure the head-guard on the head.

Extending from along the full length of the band 2 is a plurality of projecting sections 9, 10 which are intended to cover the crown of the head and which are secured to one another to define the skull shape of the helmet. The number and width of the projecting sections 9, 10 can be varied dependent on the head coverage required. However, it is convenient for there to be one section 10 which has a greater length than the other sections 9 and to which the other sections 9 are secured. It can be seen in Figs. 1 and 3 that in this example that there are five sections 9, 10 and that the central section 10 has a greater length with an enlarged end 11 to which the edges 12 of the other four sections 9 are secured. As the enlarged end 11 is intended to fit snugly directly over the top of the head, it gives good protection to this area of the skull.

In order to facilitate construction of the helmet, preferably the enlarged end 11 defines a substantially polygonal shape, in this case a pentagon, to the free sides of which the edges 12 of the other sections 9 are secured.

Although any conventional method of securement can be used to fasten the edges 12 to the end 11, one of the easiest and most secure methods is to use stitching. However, it will be appreciated that unlike conventional head-guards wherein several independent pieces must be fitted and held together prior to be sewn, the moulded one-piece form of the blank 1 of the present invention



facilitates the stitching operation necessary to fashion the helmet. Only one continuous seam around the free four sides of the end 11 whilst overlapped by the edges 12 accomplishes all the stitching work required in a single stitching operation.

The fashioned helmet can then be further finished as shown in Figs 2 and 3 to complete the head-guard by the provision of inter-looped straps 13 to form a chin-strap which prevents the head-guard from being easily pulled off the head during use. The straps 13 may be sewn to the depending portions of the helmet below the ear-flaps 3. Holes 14 may also be punched into the ear-flaps 3 to assist the passage of sound therethrough. The head-guard may also incorporate commercial features if required. For example, as shown in Fig. 2 the central section 15 of the band 2 defining the forehead cover 4 may be indented to carry an upraised moulded-in trade mark, logo or other sign.

CLAIMS

1. A head-guard for use in sporting activities comprising a blank which is made from a plastics foam and which has been fashioned to form a helmet and characterised in that the blank comprises a one-piece moulded blank, portions of which are folded and secured together to fashion the helmet.
2. A head-guard as claimed in Claim 1, characterised in that the blank comprises a fabric-covered, closed-cell foam.
3. A head-guard as claimed in Claim 2, characterised in that the fabric has been laminated to the foam.
4. A head-guard as claimed in any one of Claims 1 to 3, characterised in that the portions of the blank which are secured together are secured by stitching.
5. A head-guard as claimed in any one of Claims 1 to 4, characterised in that a chin strap is attached to the helmet for holding the head-guard in place during use.
6. A head-guard as claimed in any one of Claims 1 to 5, characterised in that the blank comprises a shaped band for fitment around the head, which band comprises ear-flaps, a forehead cover, and two portions for covering the rear of the head, and a plurality of projecting sections extending from the band which sections are intended to cover the crown of the head and which are the portions of the blank that are folded and secured together to fashion the helmet.

7. A head-guard as claimed in Claim 6, characterised in that the two portions for covering the rear of the head are adapted to be releasably secured together.
8. A head-guard as claimed in Claim 6 or Claim 7, characterised in that one of the plurality of projecting sections extending from the band has a greater length than the others and an enlarged end to which edges of the other sections are secured.
9. A head-guard as claimed in Claim 8, characterised in that the enlarged end defines a substantially polygonal shape to each free side of which one of said edges is secured.
10. A moulded plastics foam blank for use in the manufacture of a head-guard as claimed in any of Claims 1 to 9.
11. A head-guard substantially as described herein with reference to the accompanying drawings.
12. A blank for use in the manufacture of a head-guard substantially as described here in with reference to Fig., 1 of the accompanying drawings.





Application No: GB 9813598.1  
Claims searched: 1-12

Examiner: Richard Collins  
Date of search: 29 April 1999

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): A3V

Int Cl (Ed.6): A42B 1/08, 3/00, 3/04, 3/06, 3/32; A42C 2/00; A63B 71/10.

Other: Online WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	US 4706305 A (MACHO) figure 1.	-
A	US 4279038 A (BRÜCKNER) figure 1.	-

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.  
& Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.